

CHAPTER 6: ENVIRONMENT, OPEN SPACE, AND RECREATION

Henry David Thoreau once said “a river town is a winged town”¹. On a more local scale, a citizen at an EAVPC public input meeting observed that “water, tourists and colleges create villages”² indeed EAV’s original development in the seventeenth century was due to the presence of Nashoba Brook. Actonians have expressed concern about the general environment in East Acton. While there were no questions directly relating to environmental preservation, Question 7 of the Spring 2001 EAV residential public input survey generated these responses: 60% of respondents wanted an increased level of aesthetics in the village area, 58% an increase in landscaping, 69% an increase in open space and parks, and 57% wanted better pedestrian access³, demonstrating a mandate for a “greener” area. This section defines the goals and objectives relating to water quality, air quality, open space and outdoor recreation, and suggests strategies for implementation of these goals.

The contemporary creation of village districts is a manifestation of the Smart Growth and Sustainable Development movements, which essentially seek to establish community-enhancing, economically viable, and environmentally friendly areas. The Smart Growth principles addressed in this section of the East Acton Village Plan are:

- Mixing land uses
- Fostering distinctive, attractive communities with a strong sense of place
- Preserving open space, farmland, natural beauty, and critical environmental areas
- Creating walkable communities⁴

Sustainable Development “meets the needs of the present without compromising the ability of future generations to meet their own needs”.⁵ This philosophy was summarized in 1992 into nine basic components known as the Hannover Principles. These include:

- Insist on rights of humanity and nature to co-exist in a healthy supportive, diverse and sustainable condition.
- Recognize interdependence. The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognizing even distant effects.

¹ Thoreau, Henry David, *Journal*, July 2, 1858

² EAVPC Public information input meeting notes, www.town.acton.ma.us/eav

³ www.town.acton.ma.us/eav

⁴ Smart Growth Network/International City/County Management Association, “Getting to Smart Growth: 100 Policies for Implementation”, January, 2002

⁵ United Nations’ World Commission on Environment and Development, the “Brundtland Commission” 1983

- Accept responsibility for the consequences of design decisions upon human well-being, the viability of natural systems and their right to co-exist.
- Understand the limitations of design. No human creation lasts forever and design does not solve all problems. Those who create and plan should practice humility in the face of nature. Treat nature as a model and mentor, not as an inconvenience to be evaded or controlled.⁶

The implementations of these principles are symbiotic. Preservation of open space along the Nashoba Brook riparian (streamside) corridor that enhances water quality in the brook and Ice House Pond also provides an area for passive recreation; creating a walkable district decreases motor vehicle traffic, thereby enhancing air quality; design standards that encourage attractiveness encourage the creation of landscaped areas that can be planted to treat parking lot runoff and foster wildlife.

Concepts presented in this section of the East Acton Village Plan primarily come from the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) program, the Low Impact Development (LID) Center, the Massachusetts Riverways Program, Acton's Open Space and Recreation Plan 2002-2007 (OSRP), and other sources as cited. LEED and LID are described in more detail below.

Based on the Hannover Principles, LEED Green Building Rating System "is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. LEED was created to

- Define 'green building' by establishing a common standard of measurement
- Promote integrated, whole-building design practices
- Recognize environmental leadership in the building industry
- Stimulate green competition
- Raise consumer awareness of green building benefits
- Transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources."⁷

⁶ William McDonough Architects, 1992

⁷ http://www.usgbc.org/LEED/LEED_main.asp

Any development or redevelopment in the EAV area complies with the intent of LEED Credit 2, as EAV is an area “with existing infrastructure.”⁸

Low Impact Development (LID) promotes “an ecologically friendly approach to site development and storm water management that aims to mitigate development impacts to land, water and the air. The approach emphasizes the integration of site design and planning techniques that conserve the natural systems and hydrologic functions of a site.”⁹

Open space is an integral part of a healthy village environment, as manifested both in “pocket parks” that lend visual interest and respite for pedestrians as well as mini-refuges for local wildlife, and in larger tracts of land used for active and passive recreation. Acton’s OSRP incorporates the goals of MetroGreen, the land resources protection element of the Metropolitan Area Planning Council’s (MAPC) regional development plan¹⁰, which are:

- “To preserve and protect critical land resources
- To shape the growth of the region
- To help preserve and enhance a “sense of place” for the region
- To fulfill the recreational needs of the region’s population and to provide access, when appropriate, to protected open areas.”¹¹

Methods to preserve land for open space and recreation that were considered for the greater EAV area include Transfer of Development Rights (TDRs), Purchase of Development Rights (PDRs), outright municipal purchase of a property, and Conservation Restrictions (CRs)¹². Recommended methods to prioritize land for open space preservation include use of the OSRP’s list of desirable properties and use of the “Green-Space Acquisition Ranking Program (GARP)”.¹³ While this document addresses issues in the East Acton Village area, it would be appropriate to employ such methodology town-wide.

⁸ US Green Building Council, *LEED 2.1*, page 3

⁹ NAHB Research Center, *Builder’s Guide to Low Impact Development* (pamphlet)

¹⁰ OSRP, p 20

¹¹ Ibid.

¹² See the Open Space goals and objectives of this document for further information.

¹³ Grant Ian Thrall, Bert Swanson, Dom Nozzi, “Green Space acquisition and ranking program (GARP): a computer assisted decision strategy”, *Computers, Environment, and Urban Systems*, Vol. 12, pp. 161-184 This computerized ranking system utilizes a list of 15 criteria that are inserted into spreadsheets for easy parcel-to-parcel comparison

Goal E1: Protect and improve the quality and quantity of groundwater and surface water resources in the East Acton Village Area.

- Objective 1:** Encourage development and redevelopment in the East Acton Village area that will not negatively impact EAV water resources, including the use of stormwater management methods and sewage disposal methods that minimize adverse environmental impact.
- Objective 2:** Facilitate, support, and /or maintain awareness of the cleanup of contaminated (21E) sites and other conditions that may pose a threat to ground and surface water in East Acton Village.
- Objective 3:** Support efforts to minimize both point and non-point source pollution, including nonpoint source pollution associated with motor vehicle traffic. Encourage environmentally sound business practices as a means to this end.

Issues

“Acton’s greatest environmental problem, water, is the frame in which our future will take place”.¹⁴

Acton’s Master Plan Update includes as goals protect and sustain Acton’s natural environment and resources, with an objective of ensuring the restoration of polluted environmental resources.¹⁵

The East Acton Village District straddles Great Road. To the northeast of the Village District is Pope Road Hill, and to the southwest are Nashoba Brook and Ice House Pond. Soils within the District consist of sand and gravel deposits to a depth of 50 feet with a high water transmissivity (ability to transmit water through the soil) rate (see Soils Map, figure XX)¹⁶. Most parcels are deemed suitable for on-site sewage disposal systems, although two parcels, one abutting the Village and one within, require mounded leaching areas due to high groundwater¹⁷. The Acton Health Department monitors Nashoba Brook in East Acton Village on a regular basis for bacterial count¹⁸.

The Nashoba Brook Watershed is a 48 square mile area. The brook starts in Littleton and runs through Westford and Acton before joining Fort Pond Brook by Warner’s Pond in Concord. The EAV area is in the southeast corner of subbasin NB1, a 1,615 acre

¹⁴ *Acton Open Space and Recreation Plan*, p. 5

¹⁵ *Acton Master Plan Update*, p 41

¹⁶ Woodard and Curran, *Draft Acton Comprehensive Water Resources Management Plan*.

¹⁷ Ibid

¹⁸ Per Brent Reagor, RS, Acton Health Dept.

section of the watershed (see figure XX). Nashoba Brook is a cold water habitat perennial stream, annually stocked with trout by Massachusetts Fish & Wildlife. “There is evidence indicating Nashoba Brook and associated ground and surface water resources in the basin may already be impaired by existing water withdrawals and effective impervious surfaces. For example, a report issued by the Massachusetts Water Resources Commission (MWRC) in December 2001 titled Stressed Basins In Massachusetts classified the Nashoba Brook basin as *hydrologically stressed*. The purpose of the stressed basin classification is to flag areas which may require a more comprehensive and detailed review of environmental impacts or require additional mitigation.”¹⁹

Ice House Pond is an artificial impoundment of Nashoba Brook, first dammed in the 17th century. It is a Class B waterbody, so designated for protection and propagation of fish and other wildlife, and for primary or secondary recreation. It is periodically stocked with trout for sport fishing purposes. The Master Plan Update notes that the pond is “still a major wildlife area, especially for waterfowl”²⁰ Occasional spikes of *E-coli* bacteria counts in Ice House Pond, however, render it of questionable use for swimming. The Pond’s shallow depth and small size (12 acres) makes it unsuitable for powerboating, but it is a favored site for ice skating, fishing and canoeing. Ice House Pond suffers from continued eutrophication due to the high nutrient load from nearby and upstream wastewater systems and runoff. The shallow depth of the pond (3 feet before a dredging project, 5 feet after)²¹ leave the waterbody vulnerable to bottom-rooting aquatic plants. Per “The Ice House Pond Report”, in 1992, the pond was host to one of the worst infestations of water chestnut, *trapa notans*, on record. Probes showed sediment 2 feet deep and anoxic (no oxygen available in the water for breakdown bacteria) conditions led to incomplete degradation of plant debris. The nutrient load from decaying vegetation with effluent from private on-site sewage disposal systems led to cultural eutrophication (filling in) of the pond.²² The pond was dredged in the late 1990’s and continues to be monitored. Unfortunately, as water chestnut is spread by many vectors, including seeds lodged in waterfowl feathers, it will be nearly impossible to completely eradicate the invasive alien plant and continual monitoring and weeding is required.

Several properties near East Acton Village, on Wetherbee Street and Pope, Flagg and Brabrook Roads, depend on private potable water supply wells. Several commercial properties along Nashoba Brook, most notably East Acton Mobil and Bursaw Gas and Oil, possess underground storage tanks that contain oil, gasoline, or other hazardous materials.

To mitigate the adverse effects of human activities and improve the general quality of ground and surface water, the Clean Water Act requires that several steps, both

¹⁹ Letter from Julia Blatt, Executive Director, Organization for the Assabet River, to Kurt Jacobson, MADEP, February 14, 2003.

²⁰ *Master Plan Update* p 165

²¹ T. Tidman, *Ice House Pond Report*, 1/93, conversation with Town Staff

²² T Tidman, *Ice House Pond Report*, 1/93

structural and educational must be taken.²³ Proven technologies known as Best Management Practices (BMPs) and Integrated Management Practices (IMPs) need to be designed keeping the New England climate, the low-lying topography of the EAV area, and the proposed density of a village setting in mind. A holistic approach to environmental issues in the village district is desirable, including a mix of stormwater management solutions, innovative wastewater treatment, and “integrated sustainable design”²⁴ in building construction and business practices as outlined in the Leadership in Energy and Environmental Design (LEED) rating system. The Facility Managers’ Institute News, Spring 2003 Issue, quotes the USGBC (US Green Building Council) as follows: “Smart business people recognize that high performance green buildings produce more than just a cleaner, healthier environment. They also positively impact the bottom line. Benefits include: better use of building materials, significant operational savings and increased workplace productivity.”²⁵

Water quality preservation steps applicable to the East Acton Village District are discussed below.

Recommendations

Objective 1: Encourage development and redevelopment in the East Acton Village area that will not negatively impact EAV water resources, including the use of sewage disposal methods that minimize adverse environmental impact.

- a) **Reduce Impervious Cover.** Research has shown that stream degradation occurs at relatively low levels of impervious cover (10-20%) and 30% or more impervious cover can be “quite damaging.”²⁶ Impervious cover includes paved areas, decks and rooftops. “Imperviousness is one of the few variables that can be explicitly quantified, managed and controlled at each stage of development.”²⁷ In the Zoning Bylaw the required minimum for Collective Use of Parking Facilities in EAV should be 50% of the unshared parking requirement, and the required minimum for unshared parking should be reduced to 70% of the standard requirement. Other recommended methods to reduce impervious surfaces include shared driveways, angled parking, and taller buildings (taking up a smaller portion of the lot).²⁸ LEED standards dictate that a developer “Size parking capacity to meet, but not exceed, minimum local zoning requirements....”²⁹ (LEED Credit 4.4) and that building footprints be reduced (LEED Credit 5.2).

²³ *SmartGrowth and the Clean Water Act*

²⁴ energydesignresource.com e-news, Issue 5, April 29, 2000

²⁵ Sticky, Nick, “Buildings for a Livable Future”, the FMI News Spring 2003

²⁶ Smart Growth Primer

²⁷ *Site Planning for Urban Stream Protection*, www.cwp.org/SPSP

²⁸ Ibid

²⁹ US Green Building Council, *LEED – Leadership in Energy & Environmental Design, Green Building Rating System Version 2.1*, Revised 3/03 p. 8

- b) **Encourage the use of TDR's with the brook side of Great Road as sending area and the opposite side of Great Road as receiving area.** Most of the southwest section of East Acton Village lies within the legal riparian (stream side) zone of Nashoba Brook, a perennial stream. Regulations promulgated pursuant to the Rivers Act (MGL c 258, Acts of 1996) and the Wetlands Protection Act, (310 CMR 10.00) may restrict development possibilities in this area. It would benefit both the sending district in terms of maintaining water quality and complying with regulations, and the receiving district in terms of allowing greater density, to facilitate the intra-village Transfer of Development Rights process. Also, by being allowed to sell development rights that could not otherwise be exercised, the stream-side property owners reap financial benefits.
- c) **Encourage site plan design that, where possible, sets a pervious area aside for snow stockpiling at the farthest possible distance from waterbodies or wetlands.** Spring snowmelt has a particularly high level of pollutants, as an entire winter's buildup of salt and other pollutants in snow are released over a short time span. Further, acid snow can accumulate over the winter months...when it melts in spring, an entire season's acid content is released. This large pulse of pollution creates an acid shock in small streams and pools.”³⁰ To protect waterbodies, snow storage should be as far from the stream as possible and should be placed on a pervious surface so that the snowmelt can be filtered through vegetation and soils before reaching streams, ponds or wetlands.
- d) **Encourage site plan design that, where possible, and particularly in or near the riparian (streamside) zone of Nashoba Brook, provide shade over parking areas in order to keep runoff cool.** “Cold water can hold more oxygen than warm water....this keeps trout, salmon and other oxygen-lovers happy”³¹. Heated runoff adversely impacts the ability of a waterbody to hold oxygen, adversely impacting resident creatures in the brook. Parking lots will need to be designed to accommodate the root systems of larger trees. (LEED Credit 7.1 – Heat Island Effect, Non-Roof)
- e) **Educate the public as to the importance of high quality water bodies.** Public education is a part of the National Pollutant Discharge Elimination System (NPDES) process currently undertaken by several municipal departments. Private organizations in the Greater Acton area, including the Stream Teams, Organization for the Assabet River, Clean Water Action, and Acton Citizens for Environmental Safety advocate for clean water. Ultimately the success of responsible water policy depends on the support of individuals in town and in the EAV area. Education about the significance of clean waterbodies to the health of the community and the impact of individuals' actions on water quality is an essential component of clean water policy.

³⁰ Beck, Gregor Gilpin and Dobson, Clive. *Watersheds: A practical Handbook for Healthy Water*, 1999

³¹ Ibid

- f) **Encourage the use of advanced wastewater treatment technologies.** Several new technologies have made on-site sewage disposal systems environmentally friendlier than in years past. Title 5, section 15.28 also notes that “Alternative systems, when properly designed, constructed, operated and maintained, may provide enhanced protection of public health, safety, welfare and the environment” (LEED Credit 2).
- g) **Where possible and appropriate, encourage the use of shared septic systems.** In a village setting where clustering of buildings and collective use of parking is desired, shared systems may be appropriate. Title 5, Section 15.290(1) states “An approving authority may allow the use of shared systems, subject to any special conditions...for upgrade of existing systems, for new construction, or for increased flow to an existing system.” The additional regulatory and legal work required for the installation of shared systems may prove, in the long term, worthwhile.
- h) **Establish a decentralized wastewater management body.** East Acton Village, with its potential for shared wastewater treatment systems, could become a decentralized wastewater management district, administered by the appropriate agency (e.g. a Board of Health or a Sewer Commission). One function of this entity is to plug the regulatory gap between municipal treatment plants, regulated directly by the DEP, and the small system that is subject to state-mandated standards but is difficult to manage locally by the property owner. In this fashion the agency is charged, at the local level, with regulatory and enforcement functions similar to the DEP. This entity may also be charged with hands-on operational and service oriented tasks, much like a local sewer authority or DPW.³²

³² Shephard, Frank C., “Managing Wastewater” Prospects in Massachusetts for a Decentralized Approach – A discussion of options and requirements”. April 1996

Objective 2: Facilitate, support, and /or maintain awareness of the cleanup of polluted sites and other conditions that may pose a threat to ground and surface water in East Acton Village.

- a) **Inform developers or redevelopers interested in property in the EAV area of documents indicating the location of any substantial releases of oil or hazardous material and the contaminant plume locations (if any).** These documents are available, per the Massachusetts Contingency Plan (310 CMR 40.00), in the Health Department. Information about any nearby releases of oil or hazardous material should be made available to individuals inquiring as to the purchase and/or development of property in EAV. These individuals may also be referred to the Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup (MADEP BWSC) website for information, at <http://www.state.ma.us/dep/bwsc/sitelist.htm>.
- b) **Educate the Public via articles in the Municipal Quarterly and elsewhere regarding significant releases of oil or hazardous materials in EAV (as well as other areas of Acton).** Certain public notices are required per the Massachusetts Contingency Plan.
- c) **Support local nongovernmental organizations via information sharing and other means in their efforts to maintain awareness of the status of local spills.** These organizations currently include but are not limited to Acton Citizens for Environmental Safety (ACES), Acton Stream Teams, and Organization for the Assabet River (OAR), and the SuAsCo Watershed Community Council

Objective 3: Support efforts to minimize both point and non-point source pollution, including nonpoint source pollution associated with motor vehicle traffic.

“Stormwater quality tends to be extremely variable (EPA 1983; Driscoll et al 1990). The intensity (volume or mass of precipitation per unit of time) of rainfall often varies irregularly and dramatically. These variations in rainfall intensity affect ... phenomena that collectively determine the pollutant concentrations, pollutant forms, and [stormwater] flow rate observed at a given monitoring location at any given moment....In addition, the complexity of introducing a structural management practice can greatly affect hydraulics and constituent concentrations in complex ways....Effluent quality is the best current measure of overall BMP performance.”³³

³³ EPA-821-C-02-005, Urban Stormwater BMP Performance Monitoring: A Guidance Manual for Meeting the National Stormwater BMP Database Requirements, 4/02

Massachusetts Stormwater Policy and Regulations dictate that “no stormwater conveyances may discharge untreated stormwater or cause erosion in wetlands or waters, and peak discharge rates may not be more after than before development.”³⁴

The New England climate presents particular design challenges to stormwater systems, including:

- extreme cold can cause pipes to burst
- thick layers of ice can form on top of some BMP structures
- cold weather creates anoxic conditions on pond bottoms due to water density – water is densest at 39°F
- particulate matter settles more slowly in cold, dense water
- frost heaves cause structures to crack
- spring melt causes high runoff volume
- sand in snow piles can smother or fill structural BMPs³⁵

a) **To ensure consistency, incorporate Massachusetts Stormwater Management Policies in their entirety into the Acton Zoning Bylaw.**

b) **Design stormwater best management practices (BMPs) and Integrated Management Practices (IMPs) to work effectively in the New England climate.**

The Acton Engineering Department oversees the design of stormwater systems. While open channels, ponds, and constructed wetlands are considered the most effective BMPs for colder climates,³⁶ they may not be compatible with the space constraints of a village district.

c) **Ensure that the design of structural stormwater Best Management Practices (BMPs) and Integrated Management Practices (IMPs) are compatible with both Massachusetts standards and a village setting.**

Elements of a village setting that can impact the choice of stormwater BMPs include:

- *Village districts are somewhat dense.* Space constraints can render some stormwater BMPs (such as detention basins) incompatible with other features of a village district. Detention basins need to be carefully integrated with other features of the village. Some Low Impact Development (LID) stormwater management techniques, referred to as Integrated Management Practices (IMPs) may be appropriate for village districts. IMPs reduce runoff by integrating stormwater controls throughout the site in many small, discrete units.³⁷ Rooftop runoff can be manageable through storage, reuse (such as dry wells or rainbarrels), and/or redirection to

³⁴ B. Eisenberg, “Massachusetts Stormwater Management Policy/Regulations: Development, Implementation and Refinement”

³⁵ Center for Watershed Protection, “Cold Climate Stormwater” www.cwp.org

³⁶ Ibid

³⁷ Low Impact Development Strategies: An Integrated Design Approach

pervious surfaces.³⁸ Vegetated rooftops that mitigate roof runoff have been installed as far north as Toronto, Canada³⁹ (LEED 6.1).

- *Village districts need to be pedestrian-friendly.* Installation of attractive bioretention areas in parking lots should be encouraged to trap and mitigate runoff from upgradient impervious surfaces. “Bioretention utilizes soils and both woody and herbaceous plants to remove pollutants from stormwater runoff.”⁴⁰ A study in Maryland has shown that a \$4,500 retrofit of a 38x12 foot vegetated island can treat the pollutants in a half-acre of parking lot.⁴¹ Bioretention areas may be sited in such a way as to aid in traffic calming and encourage pedestrian use of the village. They may be adjacent to and connecting with vegetated areas on the perimeter of a lot.
- *Village districts should have open spaces for public gatherings.* Pedestrian plazas may be grassed or perviously paved, which encourages stormwater infiltration instead of generating runoff.
- *Village districts should have regularly spaced items of visual interest (landscaping, store windows, architectural details, benches, etc).* Streetscapes may be designed to minimize, capture and reuse stormwater runoff. Planting spaces should be provided in site plans to promote healthy street trees while capturing and treating stormwater.

More traditional stormwater BMPs may also be appropriate for some of the densely developed sites in the village district, or a mixture of BMPs or IMPs could serve as well. Stormwater Management Standards dictate that BMPs, to the extent practicable, must include an extended detention pond, a water quality swale, dry wells for rooftop runoff, and sand or organic filter pretreatment devices.⁴² It may be desirable to construct shared stormwater management facilities in order to promote pedestrian and traffic flow and to lend an appropriate village ambiance.

d) Implement non-structural stormwater BMPs.

Non-structural BMPs should be a part of an overall stormwater management plan. These include:

- Education – efforts to inform the public and businesses about the importance of protecting stormwater from inappropriate use, storage and disposal of pollutants, toxics, household products, etc. The ultimate goal is behavioral change. Educational efforts include meetings, brochures and pamphlets, seminars, etc. The Board of Health, the Conservation Commission, and local nongovernmental organizations (NGOs) are of great assistance in educational efforts.

³⁸ Redevelopment Roundtable Consensus Agreement – Smart Site Practices for Redevelopment and Infill Projects

³⁹ EPA-841-B-00-005D, *Vegetated Roof Cover*, Philadelphia, Pennsylvania

⁴⁰ USEPA Storm Water Technology Fact Sheet: *Bioretention*. EPA 832-F-99-012, September 1999.

⁴¹ EPA-841-B-00-005A, *Bioretention Applications*

⁴² MADEP, *Stormwater Management Vol. 1*, 3/97

- Maintenance – regular catch basin cleaning, street and parking lot sweeping, road and pavement repair, and ditch cleaning should be practiced by the Acton Highway Department and private property owners.
 - Source control – keeping rainfall from contacting pollutant-laden surfaces and preventing pollutant-laden runoff from leaving the site⁴³
- e) **Implement pet waste clean-up program.** Dog waste is a potent potential source of bacterial and nutrient pollution, as well as a general aesthetic nuisance. Surveys have indicated that most pet owners do not realize that pet wastes contribute to nutrients to local water bodies.⁴⁴ The pet waste issue is a town-wide problem and promulgation of regulations may be appropriate. Installation of pet waste receptacles in public green spaces is an effective but maintenance-intensive control measure. Signage installation can also be an effective part of an education campaign. Societal influences that may encourage “pooper-scoopers” include personally directed complaints from community members, sanitary collection methods, convenient disposal locations, and fines.⁴⁵
- f) **Encourage participation in the LEED (Leadership in Energy and Environmental Design) Green Building Rating System.** LEED Credit 6.1 deals with Stormwater Management: Rate and Quantity. The LEED intent is to “limit disruption and pollution of natural water flows by managing stormwater runoff”.⁴⁶
- g) **Ban non-emergency motorized craft in Ice House Pond.** “Gasoline and oil entering our waterways is a major problem because most outboard motors are two-stroke engines, “which release up to 20 to 30 percent of their gas/oil mixture unburned directly into the water.”⁴⁷

⁴³ Ibid p 178

⁴⁴ Center for Watershed Protection, “A Survey of Residential Nutrient Behavior in the Chesapeake Bay”, July, 1999

⁴⁵ Ibid

⁴⁶ LEED Guide p. 11

⁴⁷ EPA NE: Question of the Month: Do Motorboat Engines Cause Water Pollution?
www.epa.gov/region01/questions/archive/200106_boatpollution.html

Recommended Strategies for Environment, Open Space and Recreation Goal E1

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E1.1a *	Amend Zoning Bylaw to reduce parking required within the EAV Village District to 50% of that presently required if shared parking is used and reduce the unshared parking required to 70% of current required parking.	High	Zoning Bylaw Changes	PB, TM	Minor	Spring 2004	EAVPC, PB
E1.1b	In EAV, encourage clustering of buildings and tracts of shared open space to reduce total impervious surface.	High		PB, BOS	Minor	Ongoing	BOS, PB
E1.1c	Decrease impervious surfaces by encouraging efficient design of parking spaces.	Medium		PB, BOS	Moderate	Ongoing	PB, BOS
E1.1d *	Amend Zoning Bylaw to factor in a “bonus” of 25% for TDRs sold from the parcels along the riparian (streamside) corridor along Great Road to the other side of Great Road.	High	Zoning Bylaw Changes	PB, TM	Moderate	Spring 2004	EAVPC, PB, BOS
E1.1e	Encourage snow stockpiling on pervious surfaces as far away as possible from waterbodies and wetlands.	Medium	DEP Snow Disposal Guidelines		Minor	Ongoing	MassHighway, Highway, Property Owners
E1.1f *	Amend Zoning Bylaw to factor in a density bonus of .05 FAR for LEED Certification.	Medium	Zoning Bylaw changes, LEED 2.1	PB, TM	Minor	Spring 2004	EAVPC, PB, BOS

Recommended Strategies for Environment, Open Space and Recreation Goal E1 (cont'd)

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E1.1g	Require the planting of shade trees around the perimeter of parking areas to keep them cool, particularly near wetlands or waterbodies, and discourage the removal of mature trees in these areas.	Medium		PB, BOS, Tree Warden	Minor	Ongoing	PB, BOS
E1.1h	Educate the business owners in the EAV area, as well as the public at large, to the importance of maintaining quality waterbodies.	Medium			Moderate	Ongoing	ConsCom, BOH, NGOs, EAVO
E1.1i	Establish decentralized wastewater management body.	Medium	Managing Wastewater	BOS	Moderate	2008	BOS
E1.2a	Inform developers or redevelopers interested in property in the EAV area of documents indicating the location of any substantial releases of oil or hazardous material and the contaminant plume locations (if any).	Low			Minor	Ongoing	BOH, Natural Resources
E1.2b	Educate Public via articles in the Municipal Quarterly and elsewhere regarding significant releases of oil or hazardous materials in EAV (as well as other areas of Acton)	Low			Minor	Ongoing	BOH, ConsCom, NGOs, AWD
E1.2c	Support local nongovernmental organizations (NGOs) via information sharing and other means in their efforts to maintain awareness of the status of local spills.	Low			Minor	Ongoing	ConsCom, BOH, BOS

Recommended Strategies for Environment, Open Space and Recreation Goal E1 (cont'd)

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E1.3a	Incorporate Massachusetts Stormwater Management Policies in their entirety into the Acton Zoning Bylaw.	High		PB, TM	Minor	Spring 2005	PB
E1.3b	Design stormwater best management practices (BMPs) and Integrated Management Practices (IMPs) to work effectively in the New England climate.	High		PB, BOS	Minor	Ongoing with development & redevelopment	ConsCom, Engineering, Highway, BOS, PB, BOH
E1.3c *	Amend Zoning Bylaw to permit waiving parking lot landscaping dimensional requirements if landscaped areas are consolidated for the purposes of parking lot runoff bioretention and the minimum dimensions of said areas are 38x12 feet.	High	Zoning Bylaw changes	PB, TM	Moderate	Spring 2004	EAVPC, PB
E1.3d	Implement non-structural stormwater BMPs.	Medium			Moderate	2005	BOH, ConsCom, NGOs
E1.3e	Implement pet waste clean-up program.	Medium			Minor	2005	BOH
E1.3f *	Encourage participation in the LEED (Leadership in Energy and Environmental Design) Green Building Rating System.	Medium	Zoning Bylaw changes, LEED 2.1		Minor	Ongoing	BOS (site plan), PB
E1.3g *	Amend Town Bylaw to ban non-emergency motorized craft in Ice House Pond.	Medium	Town Bylaw changes	BOS	Minor	Spring 2004	EAVPC, Municipal Properties, Police

Goal E2: Enhance outdoor recreation opportunities in the EAV area.

Objective 1: Improve pedestrian and bicycle access to, between and within recreation and conservation areas, e.g. the proposed Bruce Freeman Rail Trail.

- Complete construction of sidewalks, paths, and crosswalks to improve connectivity and access as described in the Transportation and Infrastructure section of this document.
- Raise public awareness about the Bruce Freeman Rail Trail and the EAV Green
- Provide access to future recreational opportunities, e.g. sidewalks along Wetherbee Street.

Objective 2: Provide and encourage recreational opportunities in the EAV Area such as skating, cross-country skiing, hiking, fishing and canoeing.

- Ensure that a portion of the Morrison land remains forested, with enhanced trails to achieve a balance of passive and active recreation on that parcel.
- Establish, construct, and continually enhance the EAV Green.
- Support the development of playing fields on a portion of the Morrison property.
- Encourage small scale recreational and leisure activities and opportunities throughout the village, e.g. game tables, fountains, playgrounds, hopscotch.

Issues, Recommendations, and Strategies

East Acton Village once shared many of the desirable characteristics of a village. It now, though, has no real, defined center. It has been swallowed up by the strip mall/commercial growth along Great Road. While there are no undeveloped parcels of significant size within the EAV boundaries, there are several parcels surrounding the village that bear careful attention for the future. These land parcels are mainly located along the proposed Bruce Freeman Rail Trail. The Bruce Freeman Rail Trail is a pedestrian and bicycle trail planned to extend from Lowell to South Sudbury. The East Acton portion (4.5 miles) of the proposed trail follows the old Penn Central Railroad right-of-way alongside Nashoba Brook. The trail will connect several of the conservation and recreational parcels along its length. Two properties, Ice House Pond and the Morrison Property (116 Concord Road), along with the Woodland Cemetery, represent a wildlife corridor through to the Acton Arboretum. Part of the goal is to preserve and carefully manage these parcels in keeping with the village character and enhancing outdoor recreation opportunities in the village.

Currently, there are no outdoor recreational facilities within the EAV District. However, there are several privately owned recreational areas just outside the EAV district that provide a variety of opportunities for sports enthusiasts. Ice House Pond (a twelve-acre impoundment of Nashoba Brook) provides several low-key forms of recreation. Winter activities include skating and ice fishing. Warmer weather finds people fishing, row-

boating, canoeing and bird watching. The Nashoba Brook runs south from the pond through the village to Concord. These areas both support an active and important water and wildlife habitat.

The proposed EAV Green is located on the northwest side of the Great Road and Concord Road intersection. It will provide a gateway to EAV and Ice House Pond as well as an area for people to gather around benches and plantings. A conceptual plan for the Green exists and the Town should make implementation of this plan a top priority. Also, the realization of the Bruce Freeman Rail Trail will bring many to the village who will find it a convenient and scenic rest stop. A feasibility study for the Rail Trail has been completed and efforts should be made to support its implementation. The soccer fields on Concord Road, while outside the village, are accessible from the village by sidewalk. The fields are Town-owned as part of the Woodland Cemetery property. The land is currently leased to the Recreation Department on an annual basis. Eventually, this area will be used for cemetery purposes. The future improvement of the Morrison property will provide significant draw to this already growing recreational area. There are preliminary plans from the Conway School of Design for ball fields and for improved trails within the forested area. The 5 Year Open Space and Recreation Plan 2002-2007 (OSRP) states that “funds will be sought for the final design and construction of athletic fields at the Morrison Farm.”⁴⁸

There are several tracts of open space within and proximate to EAV. Two of these parcels, a 5 ¹/₃ acre parcel and a 27 ³/₄ acre parcel located on Wetherbee Street are privately owned and currently tax-sheltered under Massachusetts Forestry Laws. They are allowed reduced property tax status in return for retaining the land open for forestry. Also, there are two large parcels of fields on either side of Wetherbee Street at the Route 2 intersection that bear careful consideration. The Town owns conservation land on the west side of Wetherbee Street and the Commonwealth of Massachusetts owns the open fields on the east side. These fields are currently leased to the Department of Corrections to grow cattle fodder. All the fields are zoned conservation (ARC – Agriculture Recreation Conservation). Acton, and EAV residents in particular, have identified the preservation of open space as a means to increase the Town’s recreational potential, protect the Town’s natural resources, and maintain Acton’s remaining rural character. The OSRP states “If any of these fields become available, the town’s highest priority should be to purchase them from the state, as was done with the Wetherbee Street parcel, keep them in agriculture and as a scenic overlook.”⁴⁹

There are several improvements that will help to maintain and enhance the outdoor recreation opportunities within the village area. With the proposed Rail Trail and future field and trail development of the Morrison Property, it will provide a balance of commercial development and recreational use in the EAV district to contribute to a viable village. Consequently, the appropriate infrastructure will need to be in place to support this additional use. Currently, sidewalks do not exist with any consistency, and

⁴⁸ *Town of Acton Open Space and Recreation Plan 2002-2007*. Page 6

⁴⁹ *Town of Acton Open Space and Recreation Plan 2002-2007*. Page 48

where they do exist, conditions vary. There are no current cyclist facilities. There are no buffers between the sidewalks and road. There are no crosswalks on Great Road within EAV. The needed improvements to sidewalks as identified in the EAV Transportation and Infrastructure section will provide the critical pedestrian connections to the village. Finally, access to the Bruce Freeman Rail Trail is crucial. Two possibilities exist: t the intersection of Concord Road and Great Road and Wetherbee Street and Great Road. Both lend themselves to being gateways to and from the rail trail.

Recommended Strategies for Environment, Open Space and Recreation Goal E2

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E2.1a	Construct or reconstruct sidewalks to improve pedestrian access within, to and from EAV as described in the VHB Transportation Study Pages 49, 63, 66.	High		BOS, MassHighway	Major	2004-2010	Highway, MassHighway, Property Owners
E2.1b	Raise public awareness of the Bruce Freeman Rail Trail and EAV Green via signage, letters to newspapers, public meetings, brochures available at kiosk, library and town hall, public meetings and events.	High	BFRT Plan	BOS (signage)	Moderate	2004	EAVO, BFRT Committee
E2.2a	Ensure that a substantial portion of the Morrison land is left in its natural state to achieve a balance of passive and active recreation on the parcel.	High	Conway School of Design Plan Excerpt	BOS	Minor	2005	Municipal Properties, Natural Resources
E2.2b	Support the development of playing fields on a portion of the Morrison property.	High	Conway School of Design Plan Executive Summary	BOS, TM	Major	2005	Municipal Properties, Natural Resources
E2.2c	Encourage the Open Space and Recreation Committee to have an EAV Resident on the Committee.	High		BOS	Minor	Ongoing	BOS, OSRC
E2.2d	Establish, construct, and continually enhance the EAV Green.	High	EAV Green Conceptual Plan	BOS	Major	2004	Municipal Properties, Highway, Volunteers

Goal E3: Protect, enhance, and manage open spaces that have value as aesthetic, agricultural, recreational, wetland, flood control and/or wildlife resources.

Objective 1: Promote creation and enhancement of open spaces for public use.

Objective 2: Encourage protection and enhancement of wildlife habitat.

Objective 3: Support the establishment of a protected green belt along Nashoba Brook and Ice House Pond.

Objective 4: Promote cleanup of debris from private and public spaces.

Objective 5: Raise public awareness of the natural resources in the EAV area and their benefits to the EAV community.

Issues

Respondents to the East Acton Village Resident Survey, when asked what about the desirability of uses “if properties become available in or near the current EAV Zoning District” strongly favored (72%) open space and parks. Business and property owners also favored open space to some degree – 10 respondents found the use undesirable, 19 were neutral, and 16 believed open space and parks to be a desirable use.⁵⁰

“Why protect open space?” In short, land conservation can create more healthy, livable, economically sound communities. Consider these benefits:

- *Open space is good for the bottom line....*Real estate analysts predict long-term economic advantage will go to communities that are able to guide growth using land conservation and other smart-growth measures.
- *Open space attracts home buyers.* Open space and trails are among the top community features home buyers look for when choosing a home....
- *Open space protects public health.* Land use practices that create runoff are some of the biggest threats to public drinking water supplies.
- *Open space protects the environment.* By protecting open space, forestlands, and wetlands, communities protect endangered species habitat and keep the air and water clean....
- *Open space can secure our quality of life and our lifestyle.* With a community’s most treasured places preserved, so too are its character and quality of life.”⁵¹

⁵⁰ http://www.town.acton.ma.us/eav/eav_residential_survey.htm,

<http://www.town.acton.ma.us/eav/Desirability%20Bus.htm>

⁵¹ Trust for Public Land and National Association for Counties, *Local Greenprinting for Growth*, p. 6-7 (date?)

Very little green space remains in the EAV zoning district proper. The only unmanaged spaces exist in a narrow margin along Nashoba Brook; this greenbelt is critical to the health of the riparian (streamside) habitat. The proposed EAV Green on the corner of Concord and Great Roads as designed by a Commonwealth grant-funded consultant (The Cecil Group) would be a public space that includes a landscaped green space, a seating area, and an informational kiosk. The parking area of Colonial Spirits Plaza has recently been redeveloped to include vegetated islands and lawn and to create a pedestrian plaza area.

The EAV's immediate surroundings present a mixed bag: there are commercial properties to the east set far back from Great Road with large steep green buffer areas between the roadway and buildings, a strip of commercial properties along Nashoba Brook comprised of a sea of asphalt broken only by structures, residential areas, light industrial areas and the open space of the Morrison land. Substantial tracts of woods and fields owned by private citizens, the Town, and the Commonwealth of Massachusetts are located along Wetherbee Street, which connects EAV to Route 2 West. Of all these properties, only the Acton Conservation Land on Wetherbee Street is currently protected as open space. The Morrison land is classified "general municipal" although currently planned for recreational use. The Moritz property on Wetherbee Street is currently in forestry use under Chapter 61 but could be developed in the future. The substantial tract of Commonwealth-owned agricultural land that gives Acton a rural feel from Route 2 could be subject to sale or development by the Commonwealth. The Open Space Recreation Plan (OSRP) emphasizes that "if any of these fields become available, their purchase from the State should be a high priority".⁵²

The Acton Master Plan and the East Acton Village Plan intend to discourage sprawl by concentrating development into a more intimate, centralized area, surrounded by open space and less dense development that will protect environmentally sensitive areas while defining the village and better serving the social, cultural, financial and environmental goals of the community. Small pockets of open space should also be located within East Acton Village to provide visual interest, wildlife mini-habitats, and respite for people. Further development of East Acton Village in this manner will provide a more pedestrian-friendly area with open spaces where friends and neighbors can meet, shop, enjoy refreshments, relax, and foster a stronger sense of community.

Recommendations

Objective 1: Promote the creation and enhancement of open spaces for public use.

- a) **Encourage the creation of smaller public open spaces and "pocket parks" within EAV.** Vegetated islands in parking lots lend eye appeal to a shopping district. Small raised gardens along the fronts and sides of buildings also lend eye appeal. Both planting areas can be host to a variety of birds and butterflies. Small pedestrian plazas, or open spaces within the shopping district, encourage gatherings of people; if these areas are grassed and landscaped, they add wildlife habitat value.

⁵² OSRP p. 48

- b) **Using the OSRP priority list and other ranking tools, protect appropriate existing open space and create new open space by the “reclamation” of high priority parcels in the greater EAV area.** There are several developed parcels within the 200-foot riparian buffer zone as defined by the Massachusetts Rivers Act. These parcels are still vulnerable to further development. With the use of TDRs and PDRs, many parcels smaller than those usually approved for Conservation Restrictions may be protected from denser development. Eventually, with the use of Community Preservation Act funds as they become available, such parcels may be purchased outright by the Town or a private land conservation organization such as Sudbury Valley Trustees or Acton Conservation Trust. Smaller sensitive parcels, such as the strip of small buildings along Nashoba Brook, may be relatively affordable yet have a high environmental protection value. It may be desirable for the Town or a conservation organization to purchase these properties for their open space value as they come on the market.
- c) **Ensure protection of larger open spaces in the greater EAV area by outright purchase, Purchase of Development Rights (PDRs), Conservation Restrictions (CRs), or Transfer of Development Rights (TDRs).** Larger parcels may also be protected by the granting of a Conservation Restriction (CR) by the landowner. TDRs and PDRs are also viable means of protecting larger tracts of land and may be more economically viable than outright purchase.

Objective 2: Encourage the protection and enhancement of wildlife habitat. The Ice House Pond basin is a corridor for white-tailed deer, coyote, red fox and fisher. More permanent residents include Canada geese, wood ducks, mallards, muskrat and beaver. River otters, opossum, several species of turtle, snake, frog, and fish also live in and around the pond. Over one hundred bird species have been seen from the Dam House in the spring.⁵³ South of Ice House Pond, toward Route 2, nesting bluebirds can be found in the appropriate season.⁵⁴ While certain species require a level of remoteness from human activity, many birds, insects, and small mammals are content with mini-habitats if they contain appropriate food and shelter.

- a) **Encourage participation in LEED (Leadership in Energy and Environmental Design) Green Building Rating System.** LEED Credit 2 requires that development be channeled to “protect greenfields and preserve habitat and natural resources.”⁵⁵ This LEED credit refers to “‘greenprinting’, a smart growth strategy that emphasizes land conservation to ensure quality of life, clean air and water, recreation and economic health.”⁵⁶ Potential incentives include an appropriate increase in Floor Area Ratio (FAR) or allowance for extra signage to advertise LEED status.

⁵³ www.damhouse.com

⁵⁴ OSRP p. 45-46

⁵⁵ LEED 2.1 p.3

⁵⁶ Trust for Public Land and National Association for Counties, “Local Greenprinting for Growth”, p. 6

- b) Publicize and encourage participation in habitat creation/preservation programs such as the National Wildlife Federation's (NWF) Backyard Habitat Program and the Humane Society of the United States (HSUS) Urban Wildlife Sanctuary Program.** Both HSUS and NWF are long-established national organizations. NWF has posted an on-line course on its website at <http://www.nwf.org/backyardwildlifehabitat/>. Owners of Certified Habitats may publicize themselves by ordering a 9x12 inch sign made out of recycled aluminum. Business owners may also leverage the creation of habitats into publicity by sponsoring habitat creation events on their property and enlisting the participation of local Boy Scout, Girl Scout, and Campfire groups. The HSUS describes its program as providing "individuals and communities the opportunity to assess and improve their property's usefulness as a wildlife habitat."⁵⁷ HSUS provides instructions for creation of a sanctuary and a certificate, and has signs available for purchase. The HSUS and NWF programs are similar. The HSUS program is described in detail at <http://www.hsus.org/ace/12006>. These programs, in fact, should be encouraged town-wide.
- c) Encourage and support establishment of a greenbelt for habitat purposes along Nashoba Brook (see Objective 3).** Riparian (streamside) habitats support a wide variety of bird, mammal, insect and plant life.

Objective 3: Support the establishment of a protected green belt along Nashoba Brook and Ice House Pond.

The Connecticut River Joint Commissions noted that riparian (streamside) buffers have many desirable attributes:

- *Wildlife Habitat.* The distinctive habitat offered by riparian buffers is home to a multitude of plant and animal species, including those rarely found outside this narrow band of land influenced by the river [or stream]. Continuous stretches of riparian buffer also serve as wildlife travel corridors.
- *Aquatic Habitat.* Forested riparian buffers benefit aquatic habitat by improving the quality of nearby waters through shading, filtering, and moderating stream flow. ...It can also create stepped pools, providing cover for fish and their food supply while reducing erosion by slowing flow.
- *Recreation and Aesthetics.* Forested buffers are especially valuable in providing a green screen along waterways, blocking views of nearby development and allowing privacy for riverfront landowners. Buffers can also provide such recreational opportunities as hiking trails and camping."⁵⁸

⁵⁷ <http://www.hsus.org/ace/12053>

⁵⁸ Connecticut River Joint Commissions, "Introduction to Riparian Buffers", p. 1

- a) **Prioritize land areas along Nashoba Brook and Ice House Pond for protection as open space.** A narrow green belt currently exists along most of the length of Nashoba Brook habitat, however, it is interrupted in the EAV area. Ideally, for environmental protection, stream buffers should be 300 feet. The Massachusetts Rivers Protection Act places a 200-foot riparian (streamside) area under the jurisdiction of local Conservation Commissions, but a buffer as narrow as 35-50 feet is considered minimal effective space in most cases.⁵⁹ Acquisition of privately owned property by voluntary sale may be desirable in order to establish a more extensive greenbelt. Since outright purchase of multiple properties along the entire length of Nashoba Brook and Ice House Pond in the EAV area is financially infeasible in current economic conditions, prioritization using predetermined guidelines and incorporating the Open Space and Recreation Plan's current priority list is desirable.
- b) **Enable protection of prioritized parcels by municipal or private agencies, such as the Acton Conservation Trust (ACT), Sudbury Valley Trustees (SVT), etc.** There are several methods to protect and preserve environmentally sensitive real estate, including the generation of Conservation Easements or Restrictions (CRs), a Transfer of Development Rights (TDR), and a Purchase of Development Rights (PDR).

Conservation Restrictions (CR) "enable a landowner to protect natural resources on his/her property while retaining full ownership and the ability to sell or convey the property subject to the terms of the restriction. A CR is a voluntary, legally binding, permanent agreement between a landowner (grantor) and a holder (grantee), usually a public agency or a private non-profit land conservation organization. The grantor agrees to limit the use of his/her property for the purpose of protecting certain conservation values. The conservation restriction is recorded at the Registry of Deeds and runs with the title. Certain income, estate or real estate tax benefits may be available to the grantor of a conservation restriction."⁶⁰ CRs are a very flexible tool with which landowners (grantors) can negotiate with the entity to hold the restriction (grantee - usually a municipal body or land conservation group, such as ACT or SVT) as to the allowed activities, and they require State-level approval.

TDRs entail the selling of development rights from a parcel in a legally designated "sending" district to another parcel in a legally designated "receiving" district. Development rights can be sold from riparian areas to less environmentally sensitive parcels in EAV. PDRs are the outright purchase of the development rights, usually by a governmental body or a conservation

⁵⁹ Ibid p. 3

⁶⁰ Massachusetts Audubon Society, "Legislative Priorities", [http://www.massaudubon.org/News_& Action/Priorities/cons_restr_amndaet.html](http://www.massaudubon.org/News_&_Action/Priorities/cons_restr_amndaet.html)

organization, and they cannot be used on any parcel. The value of the development rights in both cases is negotiated according to the difference between current and potential use of the land and the resulting increase in real estate value due to potential more intensive development. Deed restrictions apply in both cases on the “sending” or “selling” parcel.

Objective 4: Promote cleanup of debris from private and public spaces. Aside from being unsightly, litter and debris can leach contaminants and harm wildlife by ingestion or entanglement.

- a) **Designate a location within East Acton Village for Acton Cleanup Day.** Cleanup Day is an annual event currently promoted and managed by the Acton Conservation Trust. Establishing a sign-in and drop-off location in East Acton Village would render EAV as visible as other sections of town for Cleanup Day. Should the Town-wide cleanup be discontinued in the future, it is strongly recommended that an East Acton Cleanup event be organized to take its place.
- b) **Encourage the cleanup of larger debris in the EAV area by establishing an award for improved properties.** This award could be publicized in the local press, “Municipal Quarterly”, or by use of temporary signage.
- c) **In the Municipal Quarterly, The Beacon, EAV Green kiosk and elsewhere, publicize the detrimental effects of litter and debris on the environment and wildlife.** Small articles regarding the hazardous materials that can leach out of certain discarded containers as well as the danger to wildlife that might swallow plastic scraps, etc. will remind the public that litter is more than an aesthetic issue.

Objective 5: Raise public awareness of the natural resources in the EAV area and their benefits to the EAV community.

While the Open Space and Recreation Plan (OSRP) is a document of vital importance to the greater Acton community, its readership will probably be somewhat narrow. Less extensive informational pieces distributed to a wider audience need to be published. Potential methods of informing the public include:

- a) **Publication of articles in the Municipal Quarterly.** This publication reaches a broad readership, but informational pieces need to be brief.
- b) **Requesting feature articles to be published in The Beacon.** Use of this widely-read publication requires buy-in from the newspaper staff and expenditure of money or a trip to a library to read.
- c) **Expansion/continuation of nature walks with the Town Natural Resources Department Director, or other qualified individual, on Wetherbee Street Conservation Land, Morrison Land, and in the future if established, the**

Nashoba Brook Greenway. These structured outings are a long-standing, popular means of raising the consciousness of Actonians to Acton's wildlife and open spaces.

- d) **Request publication of articles on the Nashoba Brook/Ice House Pond area in Nongovernmental Organization (NGO) newsletters and/or websites (Organization for the Assabet River (OAR), Acton Conservation Trust (ACT), Stream Team, etc.)** OAR's interest in Nashoba Brook is evidenced by its Stream Quality board next to Concord Road; a discussion of the lands surrounding the brook would be a natural outgrowth of this project. As a land trust, ACT by definition is dedicated to open space preservation. The Stream Team maintains an attractive and informative website to publicize the conditions of Acton's streams.
- e) **Post informational pieces about open space in the EAV area in the EAV Green information kiosk and on the municipal website.** Once established, and particularly once the Bruce Freeman Rail Trail has been developed, the EAV Green should enjoy a great deal of public use. The planned kiosk can serve to educate visitors about the value of the open spaces in the greater EAV area.
- f) **Encourage the designers of the Bruce Freeman Rail Trail to include turn-out areas with appropriate informational signage near significant open spaces and habitats.** In this manner, users of the trail can safely view, enjoy, and learn about the surroundings.

Recommended Strategies for Environment, Open Space and Recreation Goal E3

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E3.1a *	Encourage creation of smaller public open spaces and “pocket parks” within the EAV area in design guidelines.	High	Special Provisions for EAV	TM	Moderate	Ongoing	PB, BOS
E3.1b	Using the OSRP priority list and other ranking tools, protect appropriate existing open space and create new open space by the “reclamation” of high priority parcels in the greater EAV area, by outright purchase, PDRs, CRs or TDRs.	High	OSRP List, GARP	TM	Major	Ongoing	PB, BOS, ConsCom, OSRC
E3.2a *	Amend Zoning Bylaw to factor in a density bonus of .05 for LEED Certification.	Medium	Zoning Bylaw changes, LEED 2.1	TM	Moderate	Spring 2004	EAVPC, PB, BOS
E3.2b	Publicize and encourage participation in programs such as the National Wildlife Federation’s Backyard Habitat Program and the Humane Society of the United States’s Urban Wildlife Sanctuary Program.	Medium	NWF Form		Minor	Ongoing	PB, Natural Resources, Volunteers,
E3.2c	Support the establishment of a protected green belt along Nashoba Brook and Ice House Pond by prioritization and acquisition of land areas.	High	OSRP Priority List	TM	Major	Ongoing	Planning, Natural Resources, OSRC, NGOs
E3.3a	Prioritize land areas along Nashoba Brooks and Ice House Pond for protection as open space.	High	OSRP List, GARP		Moderate	Ongoing	PB, ConsCom, OSRC
E3.3b	Enable protection of high priority parcels by municipal or private agencies by outright purchase or use of TDRs, CRs, or PDRs.	High		TM if municipal purchase	Major	Ongoing	BOS, NGOs, ConsCom, OSRC
E3.4a	Designate a location within East Acton Village for Acton Cleanup Day.	Medium			Minor	Spring 2004	EAVO, ACT, Volunteers

Recommended Strategies for Environment, Open Space and Recreation Goal E3 (cont'd)

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E3.4b	Encourage cleanup of larger debris in the EAV area by establishing an award and a means of publicizing it.	Medium			Minor	Ongoing	EAVO, Volunteers
E3.4c	In the Municipal Quarterly, The Beacon, the EAV Green kiosk and elsewhere, publicize the detrimental effects of litter and debris on the environment and wildlife.	Medium			Minor	Ongoing	Natural Resources, Volunteers
E3.5a	Publish of articles in the <u>Municipal Quarterly</u> .	High			Minor	Ongoing	Natural Resources, Planning, Volunteers
E3.5b	Request feature articles to be published in <u>The Beacon</u> .	Medium			Minor	Ongoing	Volunteers
E3.5c	Continue to conduct nature walks with the Town Natural Resources Department Director or other qualified individual on Wetherbee Street Conservation Land, Morrison Land, and in the future if established, the Nashoba Brook Greenway.	Medium			Minor	Ongoing	Natural Resources, Volunteers
E3.5d	Request publication of articles on the Nashoba Brook/Ice House Pond area in the NGO newsletters and/or websites (Organization for the Assabet River (OAR), Acton Conservation Trust (ACT), Stream Team, etc.).	Medium			Minor	Ongoing	Volunteers
E3.5e	Post informational pieces about Open space in the EAV area in the EAV Green information kiosk.	Medium		BOS	Moderate	Ongoing	Natural Resources, Planning, Volunteers

Recommended Strategies for Environment, Open Space and Recreation Goal E3 (cont'd)

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E3.5f	Establish turnout areas along the Bruce Freeman Rail Trail so that cyclists may enjoy the views of natural open space.	Medium					Natural Resources, Recreation

Goal E4: Protect and promote air quality in the EAV area.

Objective 1: Encourage and support the establishment of green spaces.

Objective 2: Ensure that existing and future development or redevelopment minimizes harmful and noxious air emissions.

Objective 3: Minimize pollutant effects associated with motor vehicle traffic while ensuring public safety.

Issues

The sprawl development, both commercial and residential, that has become so common throughout the region has dramatic impacts on air and water quality. Concentrating future growth in centers so as to make efficient and maximum use of existing infrastructure will help minimize the negative environmental effects on the Town and region. Also mitigating the air quality problems of the village are the green spaces around and throughout the area. Additional green spaces and landscaping, such as trees and grass, provide shade in the summer months and help purify the water and air. Trees have been shown to sequester most air pollutants from cars, including carbon dioxide, sulfur dioxides, nitrogen oxide, ozone, and even particulate matter less than 10 microns in diameter^{61,62}. The shade provided by trees in the summer reduces evaporative emissions from parked cars, and reduces the need for energy consumption for cooling cars and buildings. Improving the efficient flow of vehicles through the Village and limiting vehicle speed while in the Village will also help reduce air pollution due to traffic through the Village.

Recommendations

Appropriate levels of landscaping along the streets, throughout the parking areas and between businesses should be encouraged for air quality, aesthetics and a pedestrian-scale, friendly environment for customers and local residents. Design standards can encourage people to stay out of their cars and walk. Buildings and streetscapes should be sized to be comfortable for the pedestrian, with ample sidewalks and low sidewalk lighting, plenty of interesting storefronts for pedestrians, and ample green space and places to stop and rest. Businesses and developers should be encouraged to provide pedestrian plazas with ample greenery. The Town should fund the creation and maintenance of the Bruce Freeman Memorial Rail Trail along East Acton Village, and should ensure that a portion of the Morrison land remain in its current natural state.

Objective 1: Amend the Zoning Bylaw to incorporate Village Landscaping Guidelines. The Planning Board should adopt new landscaping guidelines for the Village District.

⁶¹ <http://www.coloradotrees.org/benefits.htm>, accessed December 8, 2003

⁶² Nowak, David J. "The Effects of Urban Trees on Air Quality," USDA Forest Service, Syracuse, New York, November 1995 (<http://www.fs.fed.us/ne/syracuse/>)

These guidelines should include shade trees on Village roads and adequate green landscaping among buildings and along pedestrian ways to enhance the beauty of the Village, encourage pedestrian use, and help purify the air in the Village. The Planning Board should require all new development in the district to meet the landscaping guidelines. The Town should encourage existing developments in the district to move to the new guidelines whenever possible

The Town should work with the Massachusetts Highway Department, local developers, business owners and residents to line streets within the Village with shade trees and to place trees and greenery throughout the Village parking areas. All landscaping should use salt-tolerant and drought-tolerant native species.

Objective 2: Ensure that existing and future development or redevelopment minimizes harmful and noxious air emissions (see LEED sections on Energy and Atmosphere and Indoor Environmental Air Quality).

The Town will continue to enforce all zoning and environmental regulations, and work with state and federal authorities regarding state and federal regulations. The Town should encourage the use of devices on septic systems to mitigate noxious odors in the Village.

The Health Department should consider requiring odor control systems, such as carbon canisters, on commercial and residential septic and sewer vents that have been deemed to be an odor nuisance. The East Acton Village should be maintained as a pleasant environment for people, and any complaints regarding chronic wastewater odors should be addressed.

Objective 3: Minimize pollutant effects associated with motor vehicle traffic while ensuring public safety.

The Town should strive to maintain an even stream of traffic flow, at reduced speed, through East Acton Village. Traffic calming measures, such as on-street parking, traffic lights and crosswalks increase pedestrian safety and use, and should be considered to reduce energy consumption and pollution. Traffic flow through the Village should not be unduly hampered, however. The Town should work with the State to provide turning lanes, as well as sidewalks and street landscaping (see the Transportation and Infrastructure section for more details.) The Town should encourage and promote the establishment of a public transportation shuttle service between the Village and the MBTA Fitchburg Commuter Rail Line, with possible expansion to other local areas as well.

Zoning should encourage the concentration of commercial and residential development in areas in and around the District, while limiting the development away from the District, to maximize the efficient use of District resources and infrastructure.

Currently the only public transportation available from EAV is a bus that makes one round trip daily into downtown Boston. More public transportation options, including shuttles to local destinations, should be encouraged as soon as they become economically viable. Traffic volume and resultant pollutants could be mitigated by reducing traffic volume by promoting the implementation of a public transportation network.

Implementation

The proposed Bruce Freeman Memorial Rail Trail has received widespread support from the community. The Town has funded a study for the development of the rail trail portion that is in Acton. The Town should continue supporting and funding the development of the rail trail. The rail trail will provide a non-polluting transportation alternative into and out of the village.

The Town must make a concerted effort to improve traffic flow and to calm traffic in the Village District. The major traffic route, Great Road (Great Road), is a State highway, and as such, will require State approval for any improvements to the roadway and in the highway layout. The Town must lobby MassHighway to implement traffic calming measures and improve traffic flow on Great Road. See the Transportation section for specific details regarding traffic mitigation recommendations.

The Town must encourage the use of pedestrian, bicycle, and public transportation whenever possible. The Town should develop a schedule for the addition of crosswalks, on-street and/or collective use of parking, sidewalks, vehicle turning lanes and bicycle lanes, to encourage people to park their cars and use alternative forms of transportation within the Village.

Recommended Strategies for Environment, Open Space and Recreation Goal E4

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E4.1a	Ensure that a portion of the Morrison property remains in its natural state.	Medium	Draft Conway School of Design Plan	BOS	Moderate	2004	BOS, Municipal Properties
E4.1b *	Amend Zoning Bylaw to establish Village landscaping & plaza guidelines.	High	Special Provisions for EAV	Planning	Moderate	Spring 2004	Planning
E4.1c *	Amend Zoning Bylaw to allow for density bonus to Encourage participation in LEED Green Building Rating System.	Medium	Zoning Bylaw changes, LEED 2.1		Minor	Spring 2004	Engineering, EDC, Planning, BOH
E4.2a *	Amend Zoning Bylaw to allow for density bonus to Encourage participation in LEED Green Building Rating System.	Medium	Zoning Bylaw changes, LEED 2.1		Minor	Spring 2004	Engineering, EDC, Planning, BOH
E4.2b	Encourage control of odors from septic systems.	Low			Minor	Ongoing	BOH
E4.3a	Work with MassHighway to improve traffic flow to reduce pollution from idling vehicles.	Medium	Traffic Study	MassHighway	Major	Ongoing	Engineering, Highway
E4.3b	Work with Mass Highway to calm traffic to encourage pedestrian and bicycle use.	High	Traffic Study	MassHighway	Major	2006	Engineering, Highway
E4.3c	Provide turning lanes on Pope Road and Concord Road as suggested in the Transportation and Infrastructure section of this document.	High		MassHighway	Major	2006	Engineering, Highway
E4.3d	Construct sidewalks according to the recommendations in the Transportation and Infrastructure section of this document	High			Major, Ongoing	2004-2010	BOS

Recommended Strategies for Environment, Open Space and Recreation Goal E4 (cont'd)

Strategy Number	Strategy	Priority	Appendix Reference	Approval Required	Amount of Effort	Desired Completion Date	Person(s) Responsible
E4.3e	Support the implementation of a regional public transportation system as it becomes feasible.	Low		BOS, TM	Major, Ongoing	2008	BOS
E4.3f	Ensure the completion and integration of the BFRT into EAV.	Medium	BFRT Feasibility Study	BOS, TM	Moderate	2006	BOS, Recreation, Municipal Properties

